

GhostSwimmer: Tactically Relevant, Biomimetically Inspired, Silent, Highly Efficient and Maneuverable Autonomous Fish Robot

Award Information

Agency:

Department of Defense

Branch

Navy

Amount:

\$69,735.00

Award Year:

2008

Program:

STTR

Phase:

Phase I

Contract:

N00014-08-M-0294

Agency Tracking Number:

N08A-030-0202

Solicitation Year:

2008

Solicitation Topic Code:

N08-T030

Solicitation Number:

2008.A

Small Business Information

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Hubzone Owned:

N

Socially and Economically Disadvantaged:

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Woman Owned:

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Abstract

GhostSwimmer is a tactical, efficient, biomimetic autonomous artificial fish UUV that employs the actual mechanics and dynamics of biological fish to create the ultimate in efficient swimming while remaining responsive to the needs of current covert, riverine, and littoral missions. It endeavors to attack problems facing current UUVs. A product of the combined experience of David Barrett (Olin College), inventor/developer of MIT's groundbreaking Robo-Tuna, and Michael Rufo (Boston Engineering), inventor/developer of marsupial underwater UUV/Crawler technologies, it mimics the actual motion of a tuna (one of nature's fastest and most maneuverable fish). This proposal doesn't represent "another university research program" but endeavors to create a functional fish robot in Phase I that proves its advantages. The program's focus is to reduce the mechanics of robotic swimming to practice. An important part of GhostSwimmer is its use of fins and their effect on its maneuverability. GhostSwimmer has the ability to adjust its dorsal, pectoral, and caudal fins in concert to provide significant thrust, maneuverability, and propulsive efficiency. This effort develops the integration of artificial muscles for fin and tail actuation. Modularity and use of COTS technology as well as inexpensive prototyping hardware allow GhostSwimmer to be cost effective and inexpensive to upgrade.

* information listed above is at the time of submission.